Amendments to the Claims

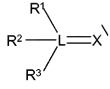
Please cancel Claims 26, 27, 28, 32 and 38. Please amend Claim 22. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1- 21. (Cancelled)

22. (Currently Amended) A mixture comprising

- at least one matrix material A which comprises at least one structural unit of the formula (2):



Formula (2)

where the symbols and indices are defined as follows:

X is the same or different at each instance and is O, S, Se or N-R^3;

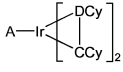
L is the same or different at each instance and is P, As, Sb or Bi;

R^1, R^2 are the same or different at each instance and are each H, F, Cl, Br, I, CN, NO_2, $N(R^3)_2$, a straight-chain, branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C{=}CR^4-$, $-C{\equiv}C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C{=}NR^8$, -O-, -S-, $-NR^9-$ or $-CONR^{10}-$, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^3 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^3 is the same or different at each instance and is a straight-chain or branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C=CR^4-$, $-C\equiv C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C=NR^8$, -O-, -S-, $-NR^9-$ or $-CONR^{10}-$, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system, and where R^3 with R^1 and/or R^2 may form a mono- or polycyclic, aliphatic or aromatic ring system;

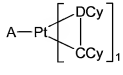
R^4, R^5, R^6, R^7, R^8, R^9,R^{10} are the same or different at each instance and are each H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms, and

- at least one emission material B ~~which is capable of emission and is a compound which emits light upon suitable excitation and contains at least one element of atomic number greater than 56 and less than 80, or selected from molybdenum, tungsten, rhenium, ruthenium, osmium, rhodium, iridium, palladium, platinum, silver, gold or europium~~ comprising at least one compound of the formula (49) to (52)

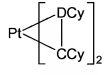


Formula (49)

Formula (50)



Formula (51)



Formula (52)

where the symbols used are:

DCy is the same or different at each instance and is a cyclic group which contains at least one nitrogen or phosphorus atom via which the cyclic group DCy is bonded

to the metal and, further wherein the group DCy is optionally substituted with one or more substituents R^{11};

CCy is the same or different at each instance and is a cyclic group which contains a carbon atom via which the cyclic group CCy is bonded to the metal and, further wherein the groups CCy is optionally substituted with one or more substituents R^{11}; wherein the DCy and CCy groups are bonded to one another via a covalent bond;

R^{11} is the same or different at each instance and is H, F, Cl, Br, I, NO_2, CN, a straight-chain, branched or cyclic alkyl or alkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by C=O, C=S, C=Se, C=NR^4, -O-, -S-, -NR^5- or -$CONR^6$-, and in which one or more hydrogen atoms may be replaced by F, or an aromatic or heteroaromatic ring system which has from 4 to 14 carbon atoms and may be substituted by one or more nonaromatic R^{11} radicals, in which a plurality of substituents R^{11}, either on the same ring or on the two different rings, together may in turn form a further mono- or polycyclic ring system;

A is the same or different at each instance and is a bidentate chelating ligand;

R^4, R^5, R^6 is the same or different at each instance and is H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms.

23. (Previously Presented) The mixture as claimed in claim 22, characterized in that the matrix material A can form glasslike layers.

24. (Previously Presented) The mixture as claimed in claim 22, characterized in that the matrix material A has a glass transition temperature T_g, measured as the pure substance, of greater than 70 °C.

25-38. (Cancelled)

39. (Previously Presented) An electronic component comprising at least one mixture as claimed in claim 22.

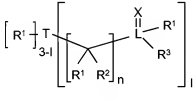
40. (Previously Presented) The electronic component as claimed in claim 39, characterized in that it is an organic light-emitting diode (OLED), an organic integrated circuit (O-IC), an organic field-effect transistor (OFET), an organic thin-film transistor (OTFT), an organic solar cell (O-SC), an organic optical detector, an organic photoreceptor in electrophotography or an organic laser diode (O-lasers).

41. (Previously Presented) The electronic component as claimed in claim 39, characterized in that the mixture directly adjoins an electron transport layer without use of a separate hole blocking layer.

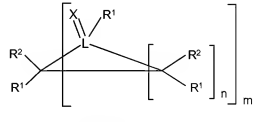
42. (Previously Presented) The electronic component as claimed in claim 39, characterized in that the mixture directly adjoins an electron injection layer or the cathode without use of a separate hole blocking layer and of a separate electron transport layer.

43. (Previously Presented) The electronic component as claimed in claim 39, characterized in that the electronic component is an organic light-emitting diode (OLED) which comprises at least one hole blocking layer and/or at least one electron transport layer and/or at least one electron injection layer and/or further layers.

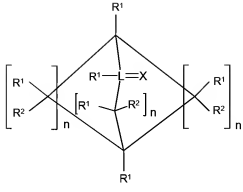
44. (Previously Presented) The mixture as claimed in claim 22, characterized in that the matrix material A used is at least one compound of the formula (5) to (15)



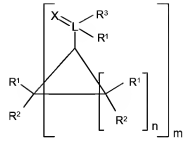
Formula (5)



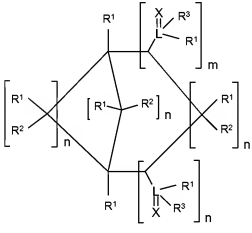
Formula (6)



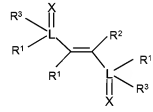
Formula (7)



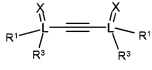
Formula (8)



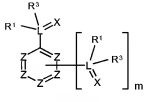
Formula (9)



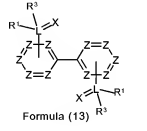
Formula (10)



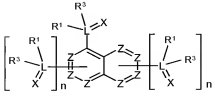
Formula (11)



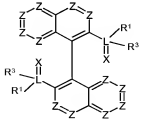
Formula (12)



Formula (13)



Formula (14)



Formula (15)

where the symbols and indices are defined as follows:

l is 1, 2 or 3;

m is 1, 2, 3, 4, 5 or 6;

n is the same or different at each instance and is 0, 1, 2, 3, 4, 5 or 6;

T is the same or different at each instance and is B, Al, CR^1, N, P=O, As=O, Sb=O or Bi=O;

Z is the same or different at each instance and is CR^1 or N;

and where the symbols and indices are defined as follows:

X is the same or different at each instance and is O, S, Se or $N\text{-}R^3$;

L is the same or different at each instance and is P, As, Sb or Bi;

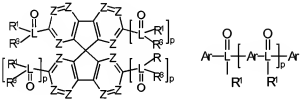
R^1, R^2 are the same or different at each instance and are each H, F, Cl, Br, I, CN, NO_2, $N(R^3)_2$, a straight-chain, branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C{=}CR^4-$, $-C{\equiv}C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C{=}NR^8$, -O-, -S-, $-NR^9-$ or $-CONR^{10}-$, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^3 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^3 is the same or different at each instance and is a straight-chain or branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C{=}CR^4-$, $-C{\equiv}C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C{=}NR^8$, -O-, -S-, $-NR^9-$ or $-CONR^{10}-$, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1 together may form a

further mono- or polycyclic, aliphatic or aromatic ring system, and where R^3 with R^1 and/or R^2 may form a mono- or polycyclic, aliphatic or aromatic ring system;

R^4, R^5, R^6, R^7, R^8, R^9,R^{10} are the same or different at each instance and are each H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms.

45. (Previously Presented) The mixture as claimed in claim 22, comprising, as the matrix material A, at least one compound of the formula (40) to (42)



Formula (40) Formula (41) Formula (42)

where the symbols L, R^1, R^3 and Z are each as defined as follows:

L is the same or different at each instance and is P, As, Sb or Bi;

Z is the same or different at each instance and is CR^1 or N;

R^1 is the same or different at each instance and are each H, F, Cl, Br, I, CN, NO_2, $N(R^3)_2$, a straight-chain, branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C=CR^4-$, $-C\equiv C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C=NR^8$, -O-, -S-, $-NR^9-$ or $-CONR^{10}-$, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^3 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^3 is the same or different at each instance and is a straight-chain or branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C=CR^4-$, $-C\equiv C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C=NR^8$, -

O-, -S-, -NR^9- or -$CONR^{10}$-, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system, and where R^3 with R^1 and/or R^2 may form a mono- or polycyclic, aliphatic or aromatic ring system;

and the further symbols and indices are:

Ar is the same or different at each instance and is a mono- or bivalent, aromatic or heteroaromatic ring system having from 2 to 40 carbon atoms, preferably having from 4 to 30 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1, either on the same ring or on different rings, together may in turn form a further mono- or polycyclic, aliphatic or aromatic ring system;

p is the same or different at each instance and is 0 or 1.

46. (Previously Presented) The mixture as claimed in claim 22, comprising, as the matrix material A, at least one compound of the formula (2), (5)-(15) and (40)-(42), characterized in that:

L is P at each instance;

X is O at each instance;

T is the same or different at each instance and is B, CR^1 or P=O;

Z is the same or different at each instance and is CR^1 or N;

R^1, R^2, R^3 are the same or different at each instance and are each CH_3, CF_3, -HC=CH- or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or

aromatic ring system, and where R^3 with R^1 and/or R^2 may form a mono- or polycyclic, aliphatic or aromatic ring system;

m is 1,2 or 3;

n is the same or different at each instance and is 0, 1, 2 or 3;

and where the symbols and indices l, o, R^4, R^5, R^6, R^7, R^8, R^9 and R^{10} are each as follows:

l is 1, 2 or 3;

p is the same or different at each instance and is 0 or 1;

Ar is the same or different at each instance and is a mono- or bivalent, aromatic or heteroaromatic ring system having from 2 to 40 carbon atoms, preferably having from 4 to 30 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1, either on the same ring or on different rings, together may in turn form a further mono- or polycyclic, aliphatic or aromatic ring system; and

R^4, R^5, R^6, R^7, R^8, R^9,R^{10} are the same or different at each instance and are each H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms.

47. (Previously Presented) The mixture as claimed in claim 22, comprising one or more polymers or dendrimers as the matrix material, characterized in that the matrix material comprises one or more structural units of the formula (2), (5)-(15) and (40)-(42), where the symbols and indices are defined as follows:

l is 1, 2 or 3;

m is 1, 2, 3, 4, 5 or 6;

n is the same or different at each instance and is 0, 1, 2, 3, 4, 5 or 6;

p is the same or different at each instance and is 0 or 1;

T is the same or different at each instance and is B, Al, CR^1, N, P=O, As=O, Sb=O or Bi=O;

Z is the same or different at each instance and is CR^1 or N;

and where the symbols and indices are defined as follows:

X is the same or different at each instance and is O, S, Se or N-R^3;

L is the same or different at each instance and is P, As, Sb or Bi;

Ar is the same or different at each instance and is a mono- or bivalent, aromatic or heteroaromatic ring system having from 2 to 40 carbon atoms, preferably having from 4 to 30 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1, either on the same ring or on different rings, together may in turn form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^1, R^2 are the same or different at each instance and are each H, F, Cl, Br, I, CN, NO_2, $N(R^3)_2$, a straight-chain, branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C=CR^4-$, $-C\equiv C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C=NR^8$, -O-, -S-, $-NR^9-$ or $-CONR^{10}-$, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^3 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^3 is the same or different at each instance and is a straight-chain or branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C=CR^4-$, $-C\equiv C-$, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C=NR^8$, -O-, -S-, $-NR^9-$ or $-CONR^{10}-$, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system, and where R^3 with R^1 and/or R^2 may form a mono- or polycyclic, aliphatic or aromatic ring system; and

R^4, R^5, R^6, R^7, R^8, R^9,R^{10} are the same or different at each instance and are each H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms.

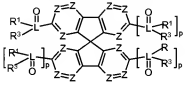
48. (Previously Presented) The mixture as claimed in claim 47, characterized in that the polymer is conjugated, part-conjugated or nonconjugated.

49. (Previously Presented) The mixture as claimed in claim 47, characterized in that the polymer is selected from the polyfluorenes, polyspirobifluorenes, polyparaphenylenes, polycarbazoles, polyvinylcarbazoles, or polythiophenes.

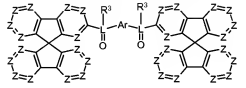
50. (Previously Presented) A mixture of claim 47, further comprising at least one matrix material A, wherein the polymer is conjugated, part-conjugated or nonconjugated.

51. (Previously Presented) A mixture of claim 47, further comprising at least one matrix material A, wherein the polymer is selected from the polyfluorenes, polyspirobifluorenes, polyparaphenylenes, polycarbazoles, polyvinylcarbazoles, or polythiophenes.

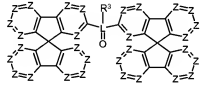
52. (Previously Presented) A compound of the formula (40), (41a) and (42)



Formula (40)



Formula (41a)



Formula (42)

where the symbols L, R^1, R^3, p and Z are each as defined as follows:

L is the same or different at each instance and is P, As, Sb or Bi;

R^1 is the same or different at each instance and are each H, F, Cl, Br, I, CN, NO_2, $N(R^5)_2$, a straight-chain, branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C{=}CR^4-$, $-C{\equiv}C-$, $Si(R^4)_2$,

$Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C=NR^8$, -O-, -S-, $-NR^9$- or $-CONR^{10}$-, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^3 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system;

R^3 is the same or different at each instance and is a straight-chain or branched or mono-, oligo- or polycyclic alkyl, alkoxy or thioalkoxy group having from 1 to 40 carbon atoms, in which one or more nonadjacent CH_2 groups may be replaced by $-R^4C=CR^4$-, -C≡C-, $Si(R^4)_2$, $Ge(R^5)_2$, $Sn(R^6)_2$, NR^7, C=O, C=S, C=Se, $C=NR^8$, -O-, -S-, $-NR^9$- or $-CONR^{10}$-, and in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, or an aromatic or heteroaromatic ring system having from 1 to 40 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, CN, NO_2, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1 together may form a further mono- or polycyclic, aliphatic or aromatic ring system, and where R^3 with R^1 and/or R^2 may form a mono- or polycyclic, aliphatic or aromatic ring system;

R^4, R^5, R^6, R^7, R^8, R^9,R^{10} are the same or different at each instance and are each H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms;

Z is the same or different at each instance and is CR^1 or N; and

p is the same or different at each instance and is 0 or 1; and

Ar is the same or different at each instance and is a mono- or bivalent, aromatic or heteroaromatic ring system having from 2 to 40 carbon atoms, preferably having from 4 to 30 carbon atoms, in which one or more hydrogen atoms may be replaced by F, Cl, Br, I, and which may be substituted by one or more nonaromatic R^1 radicals, where a plurality of substituents R^1, either on the same ring or on different rings, together may in turn form a further mono- or polycyclic, aliphatic or aromatic ring system; and

with the proviso that, in formula (43), not all p may be = 1 when Z = CH and M = S and when R^3 is a substituted or unsubstituted phenyl group.